USSR

UDC: 531.717.15

YANKOVSKIY, YU. K. and MAL'TSEVA, E. G.

"Analysis of the Existing Method for the Quality Control of Tight Threads at the Machine-Building Plants of the City of Barnaul"

Tr. Altaysk. politekhn. in-ta (Works of the Altay Polytechnic Institute), 1972, vyp 14, pp 113-122 (from RZh-32, Metrologiya i Izmeritel'naya Tekhnika, No 5, 1973. Abstract No 5.32.337)

Translation: The authors note that the reliability of average diameter threaded joints with negative allowance will depend on the sorting of mating threaded parts. An analysis of the existing method of control and sorting of threaded parts at the plants showed that the errors of measuring with rigid gages with a shortened profile lie within the 200-280 percent limits from the allowance for the sorting group. Under the existing method of the control and sorting of threaded mating parts, the value of negative allowance will oscillate within the limits of $\pm$ 60 microns. The described sliding gage has a measurement error which constitutes 20-25 percent of the allowance of the part. Measurement with a sliding gage makes it possible to determine the actual dimension $d_2^{meas.}$ of the thread recess. Use of the sliding gage will make it possible to detect the deviation of a threaded hole from the correct geometric shape (conical, oval). The design of the sliding gage presupposes the constancy of measuring force. Original article: three illustrations, two tables, and four bibliographic entries.

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Physical Properties

USSR

UDC 669.117:539.67

PITERIMOV, V. A., and MAL'TSEVA, G. K., Mordovian State University

"On the Temperature Relaxation in Metals"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 30, No 1, Jul 70, pp 178-180

Abstract: The problem of the frequency dependence of the thermal coefficient of electric resistance at periodic temperature variations is discussed on the basis of a formal analogy with the theory of internal friction. A [illegible] is described for measuring the thermal coefficient of electric resistance in the temperature interval of 1400-2100° C at a frequency of 50 Hz. The results of measuring the thermal coefficient of electric resistance of [illegible] are discussed by reference to a diagram. The diagram shows an anomaly in the interval of 1700-1900° C. It is probable that the anomaly is connected, at least to a certain degree, by the same structural variation which is [illegible] at recrystallization.

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USSR

UDC 546-386:535.343

REZNIK, B. Ye., GANZBURG, G. M., and KAL'TSEVA, G. V., Dnepropetrovsk State University, Dnepropetrovsk

"Study of the Phosphotungstomolybdate Heteropolycomplex"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, No 2, Feb 72, pp 481-485

Abstract: The IR spectra were determined of the phosphotungstomolybdate complexes prepared as described by the authors in Zh. Neorgan. Khimii, 12, 3[illegible], 1967, by the reaction of phosphotungstate with molybdate (complex I) and of phosphate with tungstate and molybdate (complex II) followed by reduction with ascorbic acid. The spectra indicated that both complexes had the same structure of an unsaturated ternary complex P:Mo:W = 1:1:7 with mixed ligands. Both I and II could be assumed to have formed by replacement of tungstate with molybdate in the phosphotungstate complex. The results confirmed the conclusions already made in earlier work on the basis of UV spectra and spectra in the visible range.

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USSR

UDC 666.321:622.765

KUZOVLEV, A. K., Candidate of Technical Sciences, IGNATENKOVA, N. I., Engineer, MAL'TSEVA, I. I., Engineer, and BOGDANOVA, Ye. D., Engineer, Central Asian Scientific Research Institute of Geology and Mineral Raw Material

"Experience in Centrifugal Floating Classification of Angrensk Kaolins in Hydraulic Turbocyclone"

Moscow, Steklo i Keramika, No 2, 1973, pp 25-26

Abstract: Experiments of flotation of kaolins were conducted on TTs-1D (TVN-75) turbocyclone and GTN-200 laboratory hydraulic turbocyclone by the Khimgeolnerud expedition at the Angrensk Research Station, in order to investigate a possible increase of the effectiveness of flotation of secondary kaolins. The centrifugal floating classification on the GTN-200 turbocyclone revealed that a high-quality kaolin concentrate with up to 32-34 % alumina content can be produced. This kaolin does not get worse with increasing density of the processed pulp and it is practically not inferior that the kaolin concentrated on NOGSh-325 scroll centrifuge. Three tables, one bibliographic reference.

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USSR

UDC 534.1:624.04

MAL'TSEVA, I. P. (Moscow)

"Nonlinear Oscillation of a Damped Object in the Case of Random Steady Influence"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 1, 1971, pp 48-53

Abstract: The article deals with the oscillation of a damped object in the case of random steady influence. A determination is made of the statistical characteristics of the reaction of the system with given parameters of kinematic perturbation. The method of kinetic equations is used for the steady and the transient oscillation regimes. 5 figures, 3 bibliographic items.

1/1

Acoustics

GONCHAROV, K. V., MAL'TSEVA, I. V., and SAVITSKIY, Ye. M., Moscow State University

"Study of Critical Phenomena in a Holmium Single Crystal Close to the Néel Temperature by Ultrasonic Methods"

Leningrad, Fizika Tverdogo Tela, No 12, Dec 71, pp 3700-3702

Abstract: The absorption and speed of ultrasound in Ho single crystals close to the Néel temperature were measured. The attenuation of sound was measured by the echo-pulse method, and a precision phase-pulse method was used to measure phase velocity. The absolute error of measurement in the speed of sound did not exceed 0.01%, and the error in the attenuation did not exceed 5%. The absolute error of measurement of temperature was 0.5%, and the relative error of measurement was not more than 0.02°. The Ho single crystal was grown by recrystallization annealing and was oriented along the a and c axes with a deviation of not more than 1°. Figures are given showing the measured values of the variation, with temperature, of the velocity $(v - v_0)/v_0$ and the attenuation α of longitudinal sound at a frequency of 20 MHz, where v_0 is the speed of sound at room temperature. It is concluded

USSR

GONCHAROV, K. V., et al., Fizika Tverdogo Tela, No 12, Dec 71, pp 3700-3702

that Ho is an isotropic antiferromagnetic, in view of the smallness of the anisotropy factor, despite its complex spiral structure.

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1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USING NIOBIUM CARBIDE AS HEATERS FOR ELECTRIC RESISTANCE FURNACES -U-
AUTHOR-(05)-SAMSONOV, G.V., KINOYSHEVA, V.S., KISLYY, P.S., MALTSEVA, L.F., MARKER, E.N.
COUNTRY OF INFO--USSR

SOURCE--KIEV, TEKHNOLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP 85-86
DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--NIOBIUM CARBIDE, BIBLIOGRAPHY, ELECTRIC RESISTANCE, ELECTRIC FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1340 STEP NO--UR/0418/70/000/001/0085/0086

CIRC ACCESSION NO--AP0123298
UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123298

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDITIONS ARE DESCRIBED FOR PRODUCING HEATERS MADE FROM NIOBIUM CARBIDE DESIGNATED FOR OPERATION IN HIGH TEMPERATURE ELECTRIC RESISTANCE FURNACES, IN A PROTECTIVE ATMOSPHERE OR IN A VACUUM. PARTICULARS OF THE HEATERS PRODUCED ARE DESCRIBED. THE HEATERS ARE OF HIGHER DENSITY. IT IS SHOWN THAT NIOBIUM CARBIDE HEATERS CAN OPERATE CONTINUOUSLY WITHOUT SIGNIFICANT CHANGES IN THEIR CHEMICAL COMPOSITION OR STRUCTURE AT 2500-2600DEGREESC AND IN A 1 TIMES 10 PRIME NEGATIVE3 MINUS 1 TIMES 10 PRIME NEGATIVE4 MM HG FOR 300 HOURS.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--BRONCHOSCOPY IN DIAGNOSING CHRONIC DUST INDUCED BRONCHITIS -U-

AUTHOR-(05)-YELOVA, M.YA., MALTSEVA, L.M., SOROKIN, V.M., GENINA, O.D., FINKELBERG, E.I.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA, 1970, NR 4, PP 56-58

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, DIAGNOSTIC METHODS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1227 STEP NO--UR/0391/70/000/004/0056/0058

CIRC ACCESSION NO--AP0054122

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054122

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER CARRIES DATA OF CLINICO ROENTGENOLOGICAL, ENDOSCOPIC AND FUNCTIONAL EXAMINATIONS OF 97 PATIENTS PRESENTING DUST INDUCED PATHOLOGY. OF THESE 62 HAD CHRONIC BRONCHITIS, 12, PNEUMONCONIOSIS AND 23 WERE SUSPECTED OF SUFFERING FROM THE LATTER. AN ANALYSIS OF THESE FINDINGS IS SUGGESTIVE THAT BOTH IN CHRONIC BRONCHITIS AND IN PNEUMONCONIOSIS, AS WELL AS IN SUSPECTED PNEUMOCONIOSIS THERE APPEAR MANIFESTATIONS OF ENDOBRONCHITIS, MOSTLY OF SUB AND ATROPHIC NATURE AND LESS OFTEN OF HYPERTROPHIC ONE. CHARACTERISTIC SIGNS OF ENDOBRONCHITIS ARE DISCERNABLE EARLIER AND MORE FREQUENTLY THAN ROENTGENOLOGICAL MANIFESTATIONS OF THE DISEASE. THERE WERE INSTANCES WHEN ENDOSCOPIC CHANGES BECAME APPARENT IN THE ABSENCE OF BRONCHOGRAPHIC ONES. THUS, IN CASES GIVING GROUND TO SUSPECT CHRONIC DUST INDUCED BRONCHITIS OR PNEUMOCONIOSIS BRONCHOSCOPY O$ TO BE REGARDED A VALUABLE PROCEDURE CONDUCIVE TO AN EARLY IDENTIFICATION OF THE AFFECTION.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COPOLYMERIZATION OF ACRYLONITRILE WITH AMINO ESTERS OF ALPHA,BETA,UNSATURATED ACIDS -U-
AUTHOR-(02)-ASKAROV, M.A., MALTSEVA, L.V.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHIM. ZH. 1970, 14(1), 31-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COPOLYMERIZATION, ACRYLONITRILE, AMINE DERIVATIVE, ESTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1837 STEP NO--UR/0291/70/014/001/0031/0034

CIRC ACCESSION NO--AP0123626
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--23DC170

CIRC ACCESSION NO--AP0123626

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS WERE STUDIED AND THE REACTIVITY RATIOS (R), SP. ACTIVITY FACTORS (Q), AND POLARITY FACTORS (E) WERE DED. OF THE COPOLYMN. BETWEEN H SUB2 C:CHCN (I) AND H SUB2 C:CHCO SUB2 CH SUB2 CH SUB2,NR SUB2 (R IS ET, BU) OR H SUB2 C:CMECO SUB2 CH SUB2 CH SUB2 NR SUB2 (R IS ET, BU, OR PH). FACILITY: INST. KHIM., TASHKENT, USSR.

UNCLASSIFIED

020 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INITIATED CRACKING OF NEOPENTANE -U-

AUTHOR-(03)-STEPUKHOVICH, A.D., KOSYREVA, R.V., MALTSEVA, L.YE.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL, 1970, 11(1), 16-25

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL CRACKING, PENTANE, ETHYLENE OXIDE, METHANE, HYDROGEN, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1430 STEP NO--UR/0195/70/011/001/0016/0025

CIRC ACCESSION NO--AP0101520

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201920003-2"

2/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0101520
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMPARATIVE STUDY OF PRODUCTS OF INITIATION OF THERMAL CRACKING OF NEOPENTANE (I) BY ETHYLENE OXIDE (II) WAS STUDIED AT 425-75DEGREES-20-140 MM, AND 1-9PERCENT II. CH SUB4, ISO-BUH, AND H (LOW CONCN.) ARE THE MAIN PRODUCTS OF THE CRACKING. THE CRACKING IS A 0.5 ORDER REACTION IN THE RESPECT TO I CONCN. AND HAS EFFECTIVE ACTIVATION ENERGY (E SUBA) 32.3 OR 28.8 KCAL-MOLE AT 1 AND 3PERCENT II, RESP. E SUBA OF II DECOMPN. IS 50.3 KCAL-MOLE. ANAL. OF THE FREE RADICAL MECHANISM OF I CRACKING IS GIVEN.

UNCLASSIFIED

Ecology

USSR

UDC 938-943

NOSOVA, L. M., and MAL'TSEVA, N. B.

"On Biogeocenology Problems in the Soviet Union"

Moscow, Izvestiya Akademii Nauk, SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 71, pp 938-940

Abstract: A Directive was issued by the Presidium of the Academy of Sciences USSR for a general session of its division of chemico-technological and biological sciences in January 1971. General Problems of biogeocenology were discussed. LAVRENKO stressed the need for studying the fluxes of energy and matter in biogeocenoses and the metabolic processes, including those of solar radiation and its distribution in the structural parts of biogeocenoses. SHWARTZ, S. S. called attention to the importance of the study of the population structure of biogeocenoses in order to improve their productivity and their stability. NICHIPOROVICH, A. A. discussed the importance of the photosynthetic activity of the cenoses in relation to both their high productivity and their resistance. ARISTOVSKAYA, T. V. and MIKITIN, D. I. reported on the important role that the biomass of microorganisms plays in soil. They recommended study of relationships between microorganisms and high species of plants as well as relationships between microflora and microfauna. MISHUSTIN, YE. N. pointed out that, to increase soil fertility, a detailed

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KOSOVA, L. M., and MAL'TSEVA, N. B., Izvestiya Akademii Nauk, SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 71, pp 938-940

the soil to determine the optimal dosage of fertilizers must be completed. CYLIS, N. V. stated that knowledge of the structural and functional organization of the biogeocenosis system is indispensable in order to forecast performance during different types of human intervention. TYURYUKANOV, A. N. advocated systems analysis and mathematical experimentation for dealing with biogeocenosis, especially when man-made biogeocenosis are created. This is particularly important in view of the changes that take place in our planet's biosphere. Other stressed the need for further research on biogeocenosis and their processes to promote a rational utilization of natural resources and an increase in their productivity. TIKHOMIROV, B. A. pointed out that fact that there are just five stations at the present time conducting biogeocenotic research in the tundra area. POSDNYAKOV, L. K. reported research done on forest biogeocenoses, on controlling their development, on exchange between the components of forest biogeocenosis, on the impact of the forest on the surrounding environment, on the methods used in controlling the number of living organisms, and on the biological measures of controlling the harmful fauna in Eastern Siberia and Ikutiya. PAAVCHENKO, N. I. discussed a plan to reclaim 17 to 18 million hectares or marshland and develop it into agricultural and wooded areas. Such a project will necessitate a complex bio-

USSR

NOSOVA, L. M., and MAL'TSEVA, N. B., Izvestiya Akademii Nauk, SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 71, pp 936-940

geocenological investigation of marshes conducted at specialized stations. VINBERG, G. G. talked about specific differences between water and land biogeocenosis. KAMSHILOV, M. M. stressed the importance of using methods of biogeocenology to develop means to increase biological productivity of reservoirs and for the biological purification of water. Basing its decision of these reports, the section of Chemical Technological and Biological Sciences assigned different tasks in the field of biogeocenology to its various branch institutes across the nation, according to their respective fields of activity. It was recommended to all these institutes to hire mathematics specialists to help them conduct research on mathematical modeling of biogeocenosis systems or their units, and also to conduct research on biogeocenological processes. The number of biogeocenological stations is also to be increased across the country in the period 1971 to 1975. Instructions were given to the departments of biogeocenology of the Botanic Institute, the Laboratory of Forestry, the Institute of Forestry and Timber of Northern Regions, and the Institute of Plant and Animal Ecology of the Ural Center. Preparation of material for maps of the biogeocenological cover of the USSR should be started. The maps will be on a 1/250,000 scale. For this reason completion of the 1/250,000 vegetation maps of the USSR is urgently recommended so they can serve as a basis for the biogeocenological maps. It was also

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USSR

NOSOVA, L. M. and HAL'TSEVA, N. B., Izvestiya Akademii Nauk, SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 71, pp 938-940

recommended to the republics to create special biogeocenological laboratories and departments.

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472 018 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--SPIN PROBE METHOD FOR STUDYING ORIENTED POLYMERS -U-

AUTHOR-(05)-STRYUKOV, V.B., ROZANTSEV, E.G., KASHLINSKIY, A.I., MALISEVA, N.G., TIBANOV, I.F.
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 895-7

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS

TOPIC TAGS--AMORPHOUS POLYMER, POLYETHYLENE TEREPHTHALATE, CAPRONE, CAPROLACTAM, POLYPROPYLENE FIBER, ORGANIC OXYGEN COMPOUND, ROTATION SPECTRUM, ELECTRON PROBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/2009 STEP NO--UR/0020/70/190/004/0895/0897

CIRC ACCESSION NO--AT0112964

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0112964

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGES OCCURRING IN THE AMORPHOUS REGIONS OF POLY(ETHYLENE TEREPHTHALATE) (LAVSAN) (I), POLYCAPROLACTAM (KAPRON) (II), AND POLYPROPYLENE (III) UPON ELONGATION OF I, II, AND III FIBERS WERE STUDIED BY USING 2,2,6,6TETRAMETHYL,4,OXOPIPERIDINOOXY RADICAL (IV) AS A PROBE AT SIMILAR TO 9300 MHZ. THE ROTATION OF IV WAS GREATLY INHIBITED IN I OWING TO THE HIGH RIGIDITY OF ITS AMORPHOUS REGIONS; ON THE OTHER HAND, IN STRETCHED AND ORIENTED I OR II YARN, IV MOVED RATHER FREELY IN CERTAIN REGIONS OF THE POLYMER, SUGGESTING THE FORMATION OF MICROCAVITIES IN THE AMORPHOUS REGION OF THE POLYMER. THE ROTATION OF IV IN III FIBERS WAS GREATLY INHIBITED (THE ROTATIONAL DIFFUSION COEFF. DECLINED BY A FACTOR OF 101, INDICATING THAT THE RIGIDITY OF AMORPHOUS REGIONS OF III MARKEDLY INCREASED DURING THE FORMATION OF ORIENTED FIBERS. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 669.71.053.4.067(088.8)

MAL'TSEVA, N. N., PYBAKOV, V. V., SHARKOV, V. I., KUYBINA, N. I.

"Method of Precipitation of Red Slimes"

USSR Author's Certificate No 307065, filed 23/03/70, published 5/08/71. (Translated from Referativnyy Zhurnal Metallurgiya No 3, 1972, Abstract No. 3G129P by G. Svodtseva).

Translation: Intensification of the process of precipitation of red slimes from solutions used in the production of alumina is achieved by using a polysaccharide such as xylane as a flocculant. In the case of the use of xylane, 10 minutes after the beginning of the experiment, the content of solids in the clarified layer is 2.5 times less than when polyacrylamide is used.

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USSR UDC 616.912-039-022.6:576.858.13

MARENNIKOVA, S. S., SHELUKHINA, E. M., MAL'TSEVA, N. N., and LADNYY, I. D., Moscow Scientific Research Institute of Virus Preparations

"Monkey Pox Virus -- the Agent of a Smallpox-Like Disease in Man"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, pp 468-469

Abstract: After a case of smallpox (boy aged 9 months) was reported from a remote village in equatorial Congo where, due to vaccination, no smallpox had occurred during the preceding two years, the patient was taken for special observation and treatment. The skin eruption, though initially identical with regular smallpox, subsequently changed, with the vesicles and pustules becoming polymorphous and developing hemorrhagic points. Exudate collected from the vesicles was incubated at 35°C on chorio-allantoic membranes of chick embryos, and a virus was isolated after the first passage. Unlike the standard smallpox virus, the newly isolated virus displayed strong hemagglutinating and hemadsorptive activity, induced necrosis after intradermal injection in rabbits, and caused eruption on the chorio-allantoic membrane even when incubated at a higher temperature (39°C). Additional comparative tests performed on the newly isolated virus, on smallpox, cowpox, and monkey smallpox viruses, and on Vaccinia virus established the identity between the newly isolated virus

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MARENNIKOVA, S. S., et al, Voprosy Virusologii, No 4, Jul/Aug 71, pp 468-469

and monkey smallpox virus. Epidemiological investigation of the village revealed no other cases of this disease. Nor was it possible to establish by what route the child had contracted the disease. Nevertheless, the results clearly indicate that monkey smallpox virus is pathogenic for man and causes a smallpox-like disease in humans.

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USSR

UDC 546.02:66.091

OGANESYAN, Yu. Ts., PENIONZHKEVICH, Yu. E., SHAMSUTDINOV, A. O., and MAL'TSEVA, N. S.

"Possibilities of Obtaining Isotopes in Fission Reactions"

Moscow, Atomnaya energiya, Vol 29, No 4, Oct 70, pp 254-271

Abstract: This paper investigates the principles of the formation of various isotopes in nuclear fission by heavy ions. The following reactions are studied: $U^{238}(C^{12},f)$; $U^{238}(Ne^{20},f)$; $U^{238}(Ne^{22},f)$; $U^{238}(Ar^{40},f)$. They were compared, in the experimental work, with nuclear fission reactions by high-energy protons and spallation reactions. The experiments were conducted with the internal beam of a 310-cm heavy ion cyclotron in the Nuclear Reactions Laboratory and with the extracted proton beam in the synchrocyclotron of the Joint Institute of Nuclear Research Laboratory for Nuclear Problems. Uranium and bismuth targets were irradiated with C^{12}, Ne^{20}, Ne^{22}, and Ar^{40} ions in a beam of 80-100μA for C^{12}, 30μA for Ne^{22}, and 8μA for Ar^{40}. Gamma radiation spectra were also measured using two Ge(Li) spectrometers. An extensive table of the isotopes obtained and the cross section of their formation in heavy-ion reactions is given. The authors thank G. N. FLEROV as well as lesser assistants for their participation.

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USSR

MALYSHEVA, T. V., Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Academy of Sciences USSR, Moscow

"Moessbauer Spectroscopy of Lunar Regolith Returned by the Automatic Station 'Luna-20'"

Moscow, Geokhimiya, No 7, Jul 73, pp 1079-1084

Abstract: Moessbauer spectra of the samples delivered by Luna-20 and Luna-16 were compared. Total content of iron in iron-containing minerals of L-20 was lower than that of L-16. Comparison of the olivine specimens from the regolith L-16 and L-20 gave analogous results. Regolith L-20 had a more homogeneous composition, contained less glass and augite. The regolith L-20 did not appear to contain large quantity of finely dispersed iron. The minerals in L-20 regolith crystallized from a less reduced magma than L-16 minerals. Under weaker reducing conditions smaller quantity of metallic iron is formed, olivine contains less fayalite component, the ratio of F to Ti is increased and instead of the ilmenite there appears the ulvospinel.

UDC 681.326

USSR

PRZHIYALKOVSKIY, V. V., SMIRNOV, G. D., PYKHTIN, V. YA., VASILEVSKIY, A. K., ZAPOL'SKIY, A. P., MAL'TSEVA, V. A., IVANOV, G. A., REMOROVA, R. A., KENIGSBERG, M. YE., and KUSHNEREV, N. T.

"Processor for Digital Data Processing System"

USSR Authors' Certificate No 305477 Cl. G06 f 15/16, filed 18 Apr 69, published 29 Jul 71 (from Referativnyy Zhurnal, Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, May 72, Abstract No 5B120P)

Translation: The proposed device can be used in general-purpose computers operating in the binary and decimal number systems, under fixed- and floating-point conditions, and with representation of information in the form of machine levels and alphanumeric symbols, which have the capability of a wide build-up of peripherals. The processor contains arithmetic and logic units broken down into sections, a data store with word addressing and symbolic addressing, a control device to perform operations in accordance with a program routine, built-in multiplex and selector channels to communicate with the set of peripherals operating simultaneously with the arithmetic and logic unit, a symbol isolation unit, a number unit, and a storage address register.

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UDC: 681.326.3

USSR

NEMENMAN, M. Ye., PYKHTIN, V. Ya., MAL'TSEVA, V. A., SAMARSKIY, A. S., MALYAVSKIY, Ye. Ye., TORIKASHVILI, V. V.

"A Device for Debugging Programs"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277410, Class 42, Filed 21 April 1969, p 133

Abstract: This Author's Certificate introduces a device for debugging programs which contains a control unit, a switching module, a unit for data reception and output, a monitoring unit, and a decoder register. As a distinguishing feature of the patent, speed and reliability in program debugging are improved by incorporating into the device an interruption flip-flop; an automatic switching flip-flop; reset flip-flops; four rows of tubes; and AND, OR, and NOT logic circuits. The operation code input lines are connected to the inputs of the first row of tubes, the second inputs of these tubes being connected through the NOT circuit to the input of the OR circuit and to the inputs of the fourth row of tubes. The second inputs of the fourth row of tubes are connected to the first output of the control unit. The outputs of the first and fourth rows of tubes are connected to the inputs of the decoder register, whose

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NEMENMAN, M. Ye., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277410, Class 42, Filed 21 April 1969, p 133

output is connected to one input of the control unit. The second output of the control unit is connected to the input of the device at the "one" of the first reset flip-flop. The "one" output of this flip-flop is connected to a tube input, and the second input of the tube is connected to the third output of the control unit. The output of the second tube is connected to the input of the device at the "zero" of the first reset flip-flop and to the input of the device at the "one" of the second reset flip-flop. The "zero" output of the first reset flip-flop is connected to the input of the third tube, the second input of this tube being connected to the fourth output of the control unit. The output of the third tube is connected to the first input of the monitoring unit, whose first output is connected to the input of the device at the "one" of the interruption flip-flop, input of the device at the "zero" of this flip-flop being connected to the fifth output of the control unit. The "one" output of the interruption flip-flop is connected to the second input of the monitoring unit. The second output of the monitoring unit is connected to the device at the "one" of the automatic switching flip-flop, the

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USSR

NEMENMAN, N. Ye., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277410, Class 42, Filed 21 April 1969, p 133

input of the device at the "zero" of this flip-flop being connected to the first output of the switching module. The second output of the switching module is connected to the input of the device at the "zero" of the second reset flip-flop, the "one" output of this flip-flop being connected to the first input of the switching module and to the first input of the AND circuit. The second input of the AND circuit is connected to the "zero" output of the interruption flip-flop, while the output of the AND circuit is connected to the first input of the OR circuit. The second input of the OR circuit is connected to the "one" output of the automatic switching flip-flop and to the second input of the switching module, the third input of the switching module being connected to the sixth output of the control unit, while the third output of the switching module is connected to the second input of the control unit, and the fourth output of the control unit is connected to the data output unit.

3/3

1/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--THE PICKLING INHIBITING ACTION OF 2N,N,DIMETHYL,P,AZOANILINE,4,CARBOXYTHIAZOL -U-

AUTHOR-(02)-MALTSEVA, V.P., MOMSENKO, A.P.

COUNTRY OF INFO--USSR

SOURCE--ZASHCHITA METALLOV, JAN.-FEB. 1970, 6, (1), 91-92

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CORROSION INHIBITOR, PICKLING, IRON ALLOY, CARBON STEEL, ACID CORROSION, THIAZOLE, CARBOXYL RADICAL, ANILINE, AZO COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0322 STEP NO--UR/0369/70/006/001/0091/0092

CIRC ACCESSION NO--AP0129554
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 024

CIRC ACCESSION NO--AP0129554

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WEIGHT LOSS MEASUREMENTS AND POLARIZATION TESTS WERE USED TO STUDY THE INHIBITIVE ACTION OF 2(N,N,DIMETHYL,P,AZOANILINE),4,CARBOXYTHIAZOLE ON ARMCO FE AND C STEELS (CONTG. C 0.06-0.12, 0.09-0.15, AND 0.14-0.22PERCENT, RESP.) IN HCL AND H SUB2 SO SUB4. THE COMPOUND HAS A SOLUBILITY IN WATER OF SIMILAR TO 0.02 G-100 G AT 25DEGREESC. THE PROTECTIVE ACTION INCREASES WITH C CONTENT OF THE STEEL AND WITH INCREASING ACIDITY AND FALLS SLIGHTLY WITH RISING TEMP. FOR EXAMPLE, IN 5 N-H SUB2 SO SUB4 AND 5 N-HCL SIMILAR TO 97PERCENT PROTECTION IS OBTAINED WITH ST. J. IT HAS LITTLE EFFECT ON THE CATHODIC REACTION AND GIVES INCREASED ANODIC POLARIZATION.

UNCLASSIFIED

USSR

UDC: 547.947.1

VACHNADZE, V. Yu., MALTSKOV, V. M., IL'YASOVA, Kh. T., MUDEHIRI, K. S., YUNISOV, S. Yu. "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Uzbek SSSR Academy of Sciences; Institute of Pharmacochemistry imeni I. G. Kutateladze, Georgian SSR Academy of Sciences

"Qualitative Characteristics of Alkaloids of Some Species of the Genus Vinca"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1973, pp 72 76

Abstract: A comparative study is made of qualitative color reactions of 38 indole alkaloids with the reagents ceric ammonium sulfate and ferric chloride in thin layer analysis on silicagel G and silufol to determine the relation between chemical structure and the type of alkaloid coloring. The alkaloid color observed after 24 hours of contact with the reagents was the criterion. The results of the study show the feasibility of predetermining the principal chromophore of the alkaloids (α-methylenindoline, indoline, indole or hydroxyindole) according to color reactions with ceric ammonium sulfate and ferric chloride.

1/1

Instruments and Measurements

USSR UDC 621.375.024:621.317.7

KLYEYNER, E. A., MALITSKIY, G. A., MAL'TSYEV, YU. S.

"Measuring Converters for Small Back-Connected Instruments"

Voronezh, Izmeritel'naya Tekhnika, No 4, 1971, pp 66-67

Abstract: The schematics of direct current measurement converters constructed on the basis of Soviet linear integrated circuits of the 1UT401 (operation amplifier) and 1KT011 (integral interruptors) are investigated. These devices are designed to be built into the analog and digital back-connected measuring instruments. The results of experimental studies of the converters are presented and data are tabulated which permit estimation of the effectiveness of applying them. It is found that on the basis of the developed converters it is possible to create back-connected instruments of both the analog and digital type which have a number of advantages: high sensitivity, small size (it is possible to build an analog device 80 × 80 × 50 mm), low intake from the signal source and the power supply, relatively high accuracy basically determined by the accuracy of the instrument connected at the converter output, high reliability, and resistance to mechanical effects determined by the properties of the output instruments.

1/1

USSR UDC: 519.2

MALUKHIN, S. A.

"Expression of Some Formulas of Queuing Theory in Terms of an Incomplete Gamma Function"

Tr. Mosk. in-ta inzh. zh.-d. transp. (Works of Moscow Institute of Railway Transportation Engineers), 1971, vyp. 385 pp 100-110 (from RZh-Kibernetika, No 10, Oct 72, Abstract No 10V99)

[No abstract]

1/1

1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CIRCULATING WATER SUPPLY AND CORROSION OF APPARATUS -U-

AUTHOR-(03)-PETRENKO, V.G., ANTONOV, A.V., MALUKHINA, V.L.

COUNTRY OF INFO--USSR

SOURCE--KOKS KHIM. 1970, (5), 49-53

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CORROSION, PHOSPHATE, RIVER WATER, COKE, CHLORINATION, PITTING CORROSION, WATER PURIFICATION, BIOCHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1211 STEP NO--UR/0068/70/000/005/0049/0053

CIRC ACCESSION NO--AP0138226
UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138226

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE WATER SUPPLY SYSTEM OF A COKE CHEM. PLANT AND METHODS OF PURIFYING THE CIRCULATING WATERS (FILTERS FOR REMOVING SUSPENDED MATTER, PHOSPHATE TREATMENT, CHLORINATION) ARE DESCRIBED. THE CORROSION ACTIVITY OF THE VARIOS WATERS WERE DETD. UNDER INDUSTRIAL AND LAB. CONDITIONS. THE SEVEREST CORROSION WAS FOUND WITH CIRCULATING AND WITH RIVER WATER, SERIOUS PITTING BEING OBSD. WATER TREATED BY BIOCHEM. METHODS IS LESS CORROSIVE THAN RIVER WATER. FOR THE FINAL COOLING OF GASES, COOLING WATER COMPOSED OF CIRCULATING WATER IN AMT. FOR SYSTEM MAKEUP TOGETHER WITH RIVER WATER TREATED BIOCHEM. AFTER FILTER TREATMENT TO REMOVE THE SUSPENDED MATTER IS REVOMMENDED. REDN. OF RIVER WATER ADDN. INTO THE CIRCULATING COOLING WATER SYSTEM CAN BE ACHIEVED BY USING WASTE WATER FOR BIOCHEM. PURIFICATION. FACILITY: ORSKO-KHALILOVO MET. KOMB., USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--RIGHT ASCENSIONS AND FLUX DENSITIES OF 30 RADIO SOURCES AT A FREQUENCY 60 MHZ -U-
AUTHOR-(03)-ASLANYAN, A.M., MALUMYAN, V.G., SANAMYAN, V.A.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCHENIYA BYURAKANSKOY OBSERVATORII AKADEMIYA NAUK ARMYANSKOY SSR, 1970, NR 41, PP 9-12
DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--COSMIC RADIO SOURCE, GALAXY, SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0072 STEP NO--UR/2620/70/000/041/0009/0012

CIRC ACCESSION NO--AP0114468
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0114468

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RIGHT ASCENSIONS AND FLUX DENSITIES OF 30 RADIO SOURCES AT A FREQUENCY 60 MC-S ARE MEASURED. SPECTRA OF 13 SOURCES IN THE RANGE 38-412 MC-S HAVE BEEN INVESTIGATED. SIX OF THE 7 RADIO SOURCES IDENTIFIED WITH RADIOGALAXIES HAVE STRAIGHT SPECTRA. THREE OF THEM ARE DOUBLE OR MULTIPLE RADIO SOURCES.

UNCLASSIFIED

USSR

UDC: 639.389.1:538.213:537.311.31:
669.15-194.56

BELENKOVA, M. M., UBAROV, A. I., MALUSHEV, K. A., MIKHEYEV, M. N.

"Change in Strength, Electrical and Magnetic Characteristics of Austenitic Steel Type 40Kh4G18F During Heat Treatment and Thermomechanical Treatment"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 5, Nov 73, pp 971-977.

Abstract: Type 40Kh4G18F aging austenitic steel is hardened by aging, cold and hot plastic deformation, both individually and together. All of the hardening treatments increase the yield point and magnetic permeability of the steel, but not to the same extent for different treatments. Electrical resistance changes more complexly. The greatest increase in magnetic permeability is observed upon cold plastic deformation, the least -- with combined treatment including aging and hot plastic deformation. However, with all hardening treatments the steel has a low value of magnetic permeability, and is therefore a good high-strength nonmagnetic material.

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1/2 010 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ELECTROTRANSFER IN HIGHLY CONCENTRATED NICKEL CHLORIDE, NICKEL NITRATE, AND NICKEL SULFATE SOLUTIONS -U-

AUTHOR-(02)-TROSHIN, V.P., MALVINOVA, V.A.

M

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(1) 130-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTROCHEMISTRY, NICKEL CHLORIDE, NITRATE, NICKEL SULFATE, HYDRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0337 STEP NO--UR/0364/70/006/001/0130/0132

CIRC ACCESSION NO--AP0103992

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103992

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE IS A CONSIDERABLE DIFFERENCE IN THE VALUES FOR ASYMMETRIC COMPDS. NICL SUB2 AND NI(NO SUB3) SUB2 AND THE SYMMETRIC COMPD. NISO SUB4. THE TRANSFER NOS. FOR NI PLUS PLUS AND THE TRANSFER OF HYDRATED MOLS. WERE APPRECIABLY LARGER IN NISO SUB4. IN THE CASE OF COMPDS. ASYMMETRIC WITH RESPECT TO CHARGE, THE ACTUAL AND APPARENT TRANSFER NOS. DIFFER VERY LITTLE, WHEREAS IN SOLNS. OF NISO SUB4 THE ACTUAL TRANSFER NOS. ARE ALMOST DOUBLE THE APPARENT ONES. IN ASYMMETRIC SOLNS. THE TRANSFER NO. OF IONS HAVING A LARGER CHARGE ARE SMALLER THAN THE TRANSFER NOS. OF THE SAME IONS IN SYMMETRIC SOLNS. ALSO IONS WITH A LARGE CHARGE TRANSFER LESS WATER. THE KINETIC HYDRATION OF NI PLUS PLUS IN NISO SUB4 SOLN. WAS 13 H SUB2 O MOLS. IN 3N SOLN. AND 10 H SUB2 O MOLS. IN 5N NISO SUB4 SOLN.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--FERRITE MICROWAVE FILTERS WITH TRAVELING WAVE TUBE -U-

AUTHOR-(02)-BAGDANOV, G.A., MALYAKIN, A.K.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELECTRONIKA, VOL 15, NO 2, 1970, PP 405-408
DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--TRAVELING WAVE TUBE, MICROWAVE FILTER, FERRITE, DESIGN STANDARD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1330 STEP NO--UR/0109/70/015/002/0405/0408

CIRC ACCESSION NO--AP0110907
UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0113907

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROBLEMS RELATED TO THE DESIGN AND FEATURES OF THE OPTIMAL STRUCTURE OF FERRITE FILTERS ARE CONSIDERED. CERTAIN CONSTRUCTION VARIANTS OF FERRITE WAVEGUIDE FREQUENCY SELECTIVE SYSTEMS FOR MICROWAVE RECEIVERS ARE PRESENTED SCHEMATICALLY. THE BEHAVIORAL CHARACTERISTICS OF PARASITIC RESONANCES (INHOMOGENEOUS PRECESSION MODES), WHICH DETERMINE THE FERRITE FILTERS IN A WIDE FREQUENCY RANGE ARE INVESTIGATED. IT IS SHOWN THAT THE SUPPRESSION OF INHOMOGENEOUS PRECESSION MODES OCCURS IN SUCH SYSTEMS. THE NUMBER OF FILTERS WHICH ENSURE A GIVEN SUPPRESSION COEFFICIENT A IS DETERMINED. EXPRESSIONS ARE DERIVED FOR THE TRANSMISSION AND SUPPRESSION COEFFICIENTS. THE DEPENDENCE OF THE SUPPRESSION COEFFICIENT A ON THE GENERALIZED DETUNING OF ARBITRARY MODES OF OSCILLATIONS, WITH RESPECT TO ITS FERROMAGNETIC RESONANCE FREQUENCY, IS PRESENTED IN A GRAPH. ABSTRACT: THESE CHARACTERISTICS MAKE IT POSSIBLE TO DETERMINE THE SUPPRESSION COEFFICIENT A OR THE NUMBER OF FERRITE RESONATORS WITH SUFFICIENTLY HIGH ACCURACY. THE POSSIBILITY OF AN INDEPENDENT ORIENTATION OF EACH FERRITE RESONATOR IS AN IMPORTANT PROPERTY OF FERRITE FILTER SYSTEMS, WHICH MAKES IT POSSIBLE TO OBTAIN THERMALLY STABLE HIGHLY DISCRIMINATING FILTERS IN A WIDE RANGE OF TEMPERATURES. THE RESULTS OBTAINED MAKE IT POSSIBLE TO PRODUCE FERRITE FILTERS WITH GIVEN DISCRIMINATING AND BAND CHARACTERISTICS.

UNCLASSIFIED

USSR

BAGDANOV, G. B., et al, Radiotekhnika i Electronika, Vol 15, No 2, 1970, pp 405-408

Abstract: These characteristics make it possible to determine the suppression coefficient A or the number of ferrite resonators with sufficiently high accuracy. The possibility of an independent orientation of each ferrite resonator is an important property of ferrite filter systems, which makes it possible to obtain thermally-stable highly discriminating filters in a wide range of temperatures. The results obtained make it possible to produce ferrite filters with given discriminating and band characteristics. Orig. art. has: 3 figures and 8 formulas.

2/2

MAL'YAN, A. N.

UNCLASSIFIED

SECTION V for Selected Agricultural Periodicals

Name: Institute of Photosynthesis, Pushchino

Description:

PCS-89
June 71

(U) During this quarterly reporting period, one new article was located from the Institute of Photosynthesis in Pushchino. On the basis of this 1970 article on plant growth, it was possible to associate three new persons with the institute: S. G. Khrustaleva, V. L. Shmaleva, and Ya. F. Yakovleva. To the present time it has not been possible to identify very many persons with the institute; however, the complete listing of staff members identified to date is given below:

All-Union Institute of Photosynthesis

Akulova, Ye. A.
Gavrilova, V. A.
Khrustaleva, S. G.
Lebedev, A. I.
Makarov, A. D.
Mal'yan, A. N.
Mukhin, Yu. N.
Olovyannishnikova, G. D.
Popova, N. B.
Prokhorova, L. I.
Sadovnikova, N. D.
Shmaleva, V. L.
Sinitsyn, A. P.
Stashov, L. F.
Stolovitskiy, Yu. M.
Surovtsev, V. I.
Yegorova, Ye. F.
Yevstigneyev, V. B.

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UNCLASSIFIED

USSR

UDC 537.311.33:546.19'681

KRIVOV, M.A., BRODNYY, V.N., MALYANOV, S.V., MELEV, V.G., RAZANOV, P.YE., RED'KO, V.P.

"Effect Of Electron (1.5 Mev) and Proton (5 Mev) Irradiation On Electrical, Optical, And Photoelectric Characteristics Of Gallium Arsenide"

V sb. Radiats. fiz.nemet. kristallov (Radiation Physics Of Nonmetallic Crystals-Collection Of Works), Vol 3, Part 2, Kiev, "Nauk.dumka," 1971, pp 16-21 (from RZh--Elektronika i yeye primeneniya, No 10, October 1971, Abstract No 10B49)

Translation: The paper studies the spectra of radiation defects created by electrons (1.5 Mev) and protons (5 Mev) at temperatures close to 300° K, their resistance to annealing, and also the effect of Cu impurity on the spectra of the levels originating after irradiation. GaAs of n- and p-type was used with carrier concentrations of $5 \cdot 10^{15}$ -- 10^{18} cm^{-3}. The mobilities for n- and p-type specimens at a temperature of 300° K were 2200--4500 cm^2v^{-1} and 140-330 $cm^2v^{-1}sec^{-1}$, respectively. The GaAs was doped with Te and Zn and part of the material was specially not doped. 3 ill. 7 ref. I.V.

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1/2 035 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--VOLT AMPERE CHARACTERISTICS OF GALLIUM ARSENIDE P-N TUNNEL JUNCTIONS IRRADIATED BY FAST NEUTRONS -U-

AUTHOR-(05)-ALEKSEYEVA, Z.M., BRUDNYY, V.N., KRIVOV, M.A., MALYANOV, S.V., KHOMCHUK, O.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(3), 146-9

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--VOLT AMPHERE CHARACTERISTIC, GALLIUM ARSENIDE PN JUNCTION, NEUTRON IRRADIATION, TUNNEL DIODE, FAST NEUTRON, RADIATION DOSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1218 STEP NO--UR/0139/70/013/003/0146/0149

CIRC ACCESSION NO--AT0133215

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0133215

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LIMITING RADIATION DOSES WERE STUDIED FOR EXPTL. TUNNEL DIODES PREPD. AT DIFFERENT TEMPS. FOR FUSION IN A VACUUM (500-650DEGREES), USING A GAAS BASE ALLOYED WITH ZN UNTIL A CARRIER CONCN. OF (5-6) TIMES 10 PRIME19-CM PRIME3 WAS REACHED. THE P-N JUNCTION WAS CREATED BY THE FUSION OF SN ON THE (111) SIDE, AND THE OHMIC CONTACT BY THE FUSION OF IN. AS THE RADIATION DOSE IS INCREASED, THERE IS A SMOOTH INCREASE IN THE EXCESS CURRENT. AT A DOSE OF 1 TIMES 10 PRIME16 NEUTRONS-CM PRIME2 THE CHARACTERISTICS CHANGE MARKEDLY; THE SEGMENT WITH A NEG. RESISTANCE DISAPPEARS ON THE RIGHT BRANCH. ISOTHERMAL HEATING AT 473DEGREES K BRINGS ABOUT THE APPEARANCE OF A "HILLY" STRUCTURE AT 0.9-1.1 V ASSOCD. WITH THE REARRANGEMENT OF GROUP DEFECTS AND PARTIAL ANNEALING OF THE DEFECTS INDUCED BY THE RADIATION. DIODES OBTAINED AT HIGH FUSION TEMPS. HAVE THE GREATEST RADIATION STABILITY. FACILITY: TOMSK. GOSUNIV., TOMSK, USSR.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201920003-2"

1/3 025 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EFFECT OF ELECTRON IRRADIATION ON PARAMETERS OF GALLIUM ARSENIDE PULSED DIODES -U-

AUTHOR-(05)-BRUDNYY, V.N., VILISOV, A.A., VYATKIN, A.P., KRIVOV, M.A., MALYANOV, S.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ, 1970, 13(4), 109-13

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--GALLIUM ARSENIDE SEMICONDUCTOR, DIODE CIRCUIT, VOLT AMPERE CHARACTERISTIC, ELECTRON BOMBARDMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1473 STEP NO--UR/0139/70/013/004/0109/0113

CIRC ACCESSION NO--AT0130403

UNCLASSIFIED

2/3 025 UNCLASSIFIED PROCESSING DATE--25NOV70

CIRC ACCESSION NO--AT0130403

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF ELECTRON IRRADN. ON VOLTAGE CURRENT (V-A), VOLTAGE CAPACITANCE, AND PULSE CHARACTERISTICS OF POINT CONTACT PULSED GAAS DIODES WAS STUDIED. THE DIODES WERE PREPD. FROM N TYPE GAAS WITH RESISTIVITES OF 0.06 AND 0.9 OHM-CM, CARRIER CONCNS. OF (3-5) TIMES 10 PRIME16 AND (1-2) TIMES 10 PRIME15 CM PRIME3, AND MOBILITIES OF 4500 AND 5500 CM PRIME2 V SEC, RESP. AFTER ASSEMBLY COMPLETION, ELEC. FORMING WAS CARRIED OUT BY HALF PERIOD CURRENT PULSES IN THE FORWARD DIRECTION. THE DIODES WERE IRRADIATED BY 1.5-MEV ELECTRONS, AND CAPACITANCE MEASUREMENTS WERE MADE AT 30 MHZ. FROM THE V-A CURVES, IT CAN BE SEEN THAT BREAKDOWN VOLTAGE AND FORWARD RESISTANCE INCREASE, AND RECTIFICATION COEFF. DECREASES UNDER IRRADN. THE CHANGES ARE ATTRIBUTED TO AN INCREASE IN THE RESISTIVITY AT THE EXPENSE OF A DECREASE IN THE CONCN. OF CHARGER CARRIERS. CAPACITANCE DECREASES UNDER IRRADN., AND THE DEPTH OF THE CAPACITANCE MODULATION DECREASES AT THE COST OF CHANGES IN IMPURITY DISTRIBUTION IN THE SPACE CHARGE REGION (HIGHLY FORMED DIODES). THIS BEHAVIOR CAN BE EXPLAINED IN THE LIGHT OF THE THEORY DEVELOPED FOR P-N PLANE JUNCTIONS AND SCHOTTKY TYPE BARRIERS. FROM THE PULSE EXPTS., THE RECOVERY TIME (T SUBRECOV) UNDER IRRADN. INCREASES FOR SCHOTTKY BARRIERS (SLIGHTLY FORMED) AT THE EXPENSE OF INCREASING RC (R AND BAR C ARE MEAN VALUES OF RESISTANCE AND CAPACITANCE, RESP., IN THE SWITCHING PROCESS). FOR HIGHLY FORMED DIODES, BEHAVIOR OF T SUBRECOV UNDER IRRADN. IS GOVERNED BY A RELATION BETWEEN LIFETIME OF MINORITY CARRIERS (T) AND BAR RC.

UNCLASSIFIED

3/3 025 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0130403

ABSTRACT/EXTRACT--AT LOW RADIATION DOSES, A DECREASE OF T SUBRECOV CAN BE OBSD. AT THE EXPENSE OF T DECREASE, WHILE AT HIGH DOSES (SIMILAR TO 10 PRIME16 ELECTRONS-CM PRIME2) T SUBRECOV ALWAYS INCREASES.

FACILITY: SIB. FIZ.-TEKH. INST. IM. KUZNETSOVA, TOMSK, USSR.

UNCLASSIFIED

ses 2—40 mg/m³. Into the atmosphere there are also released divinyl, butyricaerosol, formaldehyde, acrolein, carbon monoxide, sulfudioxide, ammonia, methyl alcohol, aromatic amines. Heat-producing microclimate is an adverse factor as well. The workers demonstrated functional shifts in the state of the nervous system, alterations in the upper respiratory tract, peripheral blood and teguments. Medico-prophylactic measures are proposed.

mg

1/1

REEL/FRAME

2

19681103

Acc. Nr.: AP0029502 Ref. Code: UR 0391

PRIMARY SOURCE: Gigiyena Truda i Professional'nyye Zabolevaniya, 1970, Nr 1, pp 31-34

WORK CONDITIONS AND THE STATE OF HEALTH OF WORKERS ENGAGED IN HOT VULCANIZATION OF FOOTWEAR RUBBER

Z. A. Volkova, L.Ye. Milkov, K. A. Lopukhova, L. M. Malyar, Yu. L. Makarenko, T. K. Shakhova

Summary

Hot vulcanization (cure) of rubber with divinyl-styrene raw rubber serving as a base is attended by the formation of a complex steam and gas mixture. In this process

USSR UDC: 621.396.6.002

SHABROV, V. G., MALYAR, V. V., ALTUNIN, V. I.

"State and Prospects of Repair Production in the Sector"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 1, p 92 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8V357)

Translation: The paper briefly characterizes the state of repair production in the sector. The advantages of a centralized system of repair service to enterprises are considered. Resumé.

1/1

USSR UDC 615.272.2:547.821.4.03:616.24-003.662-092.9

KATSNEL'SON, B. A., BABUSHKINA, L. G., ARONOVA, G. V., STARIKOVA, S. K., POCHASHEV, Ye. N., SHNAYDMAN, I. Ya., POSTOVSKIY, S. N., BORODULINA, S. N., and MALYARENKO, I. S., Sverdlovsk Institute of Industrial Hygiene and Occupational Diseases, and Karaganda Institute of Industrial Hygiene and Occupational Diseases and Ural Polytechnic Institute, Sverdlovsk

"Experimental Study of the Protective Effect of Polyvinylpyridine-N-Oxide Against Silicosis"

Moscow, Gigiyena i Sanitariya, No 10, Oct 1970, pp 20-23

Abstract: A polyvinylpyridine-N-oxide polymer with a molecular weight of 117,500 was prepared, and its activity and effectiveness against silicosis were compared with those of a previously prepared polymer of molecular weight 40,000 and the P-204 polymer (Bayer, West Germany). It was found that the new polymer was more effective than either of the other two polymers against intratracheal dust (cristobalite) introduced in rats for a period of 3-1/2 months. Development of silicosis was sharply reduced, as indicated by the decrease in size and number of cellular-dust lumps and the reduction in proliferating reactions, and sclerotic shifts.
1/2

USSR

KATSNEL'SON, B. A., et al, Gigiyena i Sanitariya, No 10, Oct 1970, pp 20-23

Dust elimination from the lungs and inhibition of the silicotic fibrogenesis process are associated with an increase in the resistance of the alveolar coniophages to the cytopathic effect of silicon. It was found that this process was accompanied by a decrease in the diffusion of a lysosome hydrolytic enzyme (acid phosphatase) into the cytoplasm of macrophages due to the effect of silicon, a fact which is attributed to the anti-silicosis effect of the new polyvinylpyridine-N-oxide polymer.

potassium chloride and acetylcholine action on the epicardium. Khayutin, V. M.; Shur, V. L.; Malyarenko, Yu. E. (Lab. Biophys. Cardiovasc. System, Inst. Norm. Pathol. Physiol., Moscow, USSR). *Fiziol. Zh. SSSR im. I. M. Sechenova* 1970, 56(1), 84-94 (Russ). Expts. on anesthetized cats showed elec. activity developing in the lower cardiac nerve during irrigation of the pericardium and epicardium with solns. of KCl and acetylcholine chloride. KCl 31.2–500 m*M* and acetylcholine solns. at 1–1000 μg/ml acting on the cardiac membrane induced centripetal impulses, esp. the slow type, in the peripheral sections of the lower cardiac nerve. This impulsation was formed by antidromic discharges of the sympathetic postganglinic C fibers, with a rate of conduction of 0.75 m/sec. These discharges seemed to result directly from K^+ and acetylcholine excitation of nonmyelinated fibers. BJJR

REEL/FRAME
19811206

Acc. Nr: AP0051944 Ref. Code: UR0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i Meditsiny, 1970, Vol 69, Nr 2, pp 3-6

STIMULATING EFFECT OF ACETYLCHOLINE ON THE REFLEXOGENIC ZONE OF EPICARDIUM AND PERICARDIUM IN VAGOTOMIZED ANIMALS

Yu. Ye. Maluarenko

Institute of Normal and Pathological Physiology of the AMS of the USSR, Moscow

With stimulation of the spinal afferent system of the epicardium and pericardium by applying acetylcholine in concentrations of 0.001—1000 γ/ml any supraliminal concentration provokes presser reactions exclusively. Interoceptive reflexes arise in concentrations of 0.001—0.5 γ/ml and nociceptive ones — in concentrations of 1—10 γ/ml. The acetylcholine-reflex amplitude graph consists of three branchings and is fundamentally resembling the chart for the reflexogenic zone of the small intestine constructed by V. M. Khayutin et al (1964).

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USSR UDC 612.178

MALYARENKO, YU. YE., and KHAYUTIN, V. M., Institute of Normal and Pathological Physiology, Academy of Sciences USSR, Moscow, and Rostov Medical Institute

"Cardiovascular Reflexes Elicited by Stimulation of the Heart With Potassium Ions Under Conditions of Spinal Deafferentation and Intact Innervation"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, No 8, 1972, pp 1230-1237

Abstract: Stimulation of the cat heart with potassium chloride solution after bilateral extirpation of the stellate and next two ganglia of the sympathetic chain elicited pressor reflexes that resulted in a lowering of arterial pressure and bradycardia. The relationship between the intensity of bradycardia and hypotension at concentrations ranging from 8-10 mM/liter (reflex threshold) and 60 mM/liter was a linear one. Injection of atropine reduced the intensity of bradycardia by a factor of 2 to 3 and the magnitude of the depressor reflexes by half. In animals with intact cardiac innervation, potassium chloride elicited not only depressor and pressor reflexes but multiphasic reflexes as well. The nature of the reflexes was specific: stimulation of the afferent nerves of the heart invariably elicited only depressor reflexes, while stimulation of the spinal afferent ending generally elicited only pressor reflexes.
1/1

USSR

UDC 621.391.84:621.391.883.2

MALYAREVSKIY, N.M.

"Relative Interference-Freedom Of Detection Of Noise Signals In Noncoherent Systems With Optimum Pi-Shaped Filters"

Sb. nauch. tr. Kiyev. in-t inzh. grazhd. aviatsii (Collection Of Scientific Works Of The Kiev Institute Of Civil Aviation Engineers), 1970, Issue 5, pp 122-126 (from RZh--Radiotekhnika, No 9, Sept 1971, Abstract No 9A153)

Translation: The deterioration is evaluated of the interference-freedom of a noncoherent system during substitution of an optimum pi-shaped filter in connection with the difficulty of realizing an optimum filter. It is shown that with a strongly delineated frequency-dependent attenuation, a system with an optimum filter gives a gain in interference-freedom, which increases in proportion to the parameters characterizing attenuation at the edges of the frequency bands. With small attenuation both systems prove to be of equal value. 2 ill. 3 ref. N.S.

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USSR UDC 621.391.8

MALYAREVSKIY, N.M.

"The Distinguishability Of Complex Signals In A Noncoherent System of Echo Direction Finding"

Izv. VUZ:Radioelektronika, Vol XV, No 4, April 1972, pp 511-514

Abstract: It is shown that the independence of the noise immunity of a noncoherent system from the form of a complex signal exists not only with an optimum choice of band but also with any sufficiently wide band of the input filter. On this basis the principal characteristics of a noncoherent system are obtained, optimized as a whole from the point of view of a previous paper by the author [cf. Izv. VUZ:Radioelektronika, 1967, 10, No 4, 335] for any complex signal, including also ordinary signals. 5 ref. Received by editors, 7 June 1971.

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USSR

UDC: 539.4

KALIMOV, A. I., MALYATIN, V. V., POCHTENNYY, Ye. K.

"Investigation of the Kinetics of Steel Destruction Under Impact Loading"

V sb. Teoriya i prakt. vysokoskorost. deformatsii metal. materialov (Theory and Practice of High-Velocity Deformation of Metallic Materials--collection of works), Moscow, 1971, pp 8-9 (from RZh-Mekhanika, No 5, May 72, Abstract No 5V978)

Translation: The paper presents a method of recording the distribution of cracks in flat steel specimens under dynamic tension using a high-speed photo unit. Heat-treated stamped steel grades 5KhNM and 4Kh5V2FS was investigated. An analysis is given of the speed of crack propagation as a function of impact speed, the initial damage to the specimen (produced by different stress concentrators), the dynamic strength limit and the thickness of the specimen. Oscillograms of the force-time relation are given. Resistance strain gauges were used as the pickups. The oscillograms were recorded on the S1-18 and S1-37 cathode-ray oscillographs.

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USSR UDC 621.375.82

BORODULIN, V. I., MALYAVKINA, G. M., PAK, G. T., PETROV, A. I., CHERNOUSOV, N. P., SHVEYKIN, V. I., YASHUMOV, I. V.

"Some Properties of Degradation of Heterolasers"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 3, Moscow, Soviet Radio, 1972, pp 108-110 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D977)

Translation: An experimental study was made of the catastrophic and slow degradation of heterolasers. It was demonstrated that catastrophic degradation occurs for average light energy flux densities $(2-4)\cdot10^6$ watts/cm^2 and local densities of 10^7 watts/cm^2. Depending on the light energy flux density the service life of the heterolasers can vary from several minutes to 100 hours and more; catastrophic degradation in this case is the limiting case of slow degredation under the effect of radiation. Heterolasers with a radiation power in the pulse of $\geq$ 10 watts, a frequency of 6 kilohertz, and a pulse duration of 100 nanoseconds are capable of operating more than 100 hours without a significant reduction in power.

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USSR UDC 546.55-547.24

KAZANKOVA, M. A., MALYKHINA, I. G., TERENINA, M. B., and LUTSENKO, I. F., Moscow State Institute imeni M. V. Lomonsov

"Generation of Copper Hydride and its Complexes With Compounds of Trivalent Phosphorus"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2133-2137

Abstract: In order to improve on the purity of the copper hydride obtained from the Wurtz reaction, cuprous bromide was reacted with triethyltin in absolute tetrahydrofuran at -25°, giving pure copper hydride. The degree of purity of the product was determined by comparing its reaction with triisopropylphosphine with that of copper hydride obtained by the Wurtz method. The stabilizing influence of triisopropylphosphine was suggested to be due to the formation of pi bonds with the d orbitals of the metal, and therefore hexamethyltriaminophosphine was predicted to show an even stronger stabilizing influence. Various stoichiometric complexes of cuprous halides or copper hydride with hexamethyltriaminophosphine were prepared. These hydrides had higher melting points than the corresponding triisopropylphosphine complexes. The halide complexes were also reduced to the corresponding hydrides and pure copper hydride with triethyltin. It was shown that the
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USSR

KAZANKOVA, M. A., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2133-2137

thermal stability of the complexes is inversely proportional to the number of ligands on a copper molecule. All reactions were carried out under dry argon.

2/2

USSR

UDC: 621.039.5/68:004.6

YURCHENKO, Yu. F., MURAV'YEV, V. F., PYATUNIN, B. A., and MALYAVIN, B. G.

"Choice of Metal-Cutting Methods in Reactor Repair"

Moscow, Atomnaya energiya, No 6, 1973, pp 427-434

Abstract: Because of the radiation hazard in repairing reactors, there is a great deal of interest in finding and developing methods of cutting metals safely and remotely in air or under water. These methods are discussed in the present article. Mechanical or plasma methods of cutting are usually employed; the former, however, involve equipment difficult to design and construct, and are usually designed for individual operations; the latter plasma methods are limited by the thickness of the metals to be cut. It has been established that the most acceptable method for reactor repair under specific conditions is the electrical contact method since it can be done with relatively inexpensive material requiring low power levels for operation. This system is explained and various examples of its applications given.

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USSR UDC: 681.326.3

NEMENMAN, M. Ye., PYKHTIN, V. Ya., MAL'TSEVA, V. A., SAMARSKIY, A. S., MALYAVSKIY, Ye. Ye., TORIKASHVILI, V. V.

"A Device for Debugging Programs"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277410, Class 42, Filed 21 April 1969, p 133

Abstract: This Author's Certificate introduces a device for debugging programs which contains a control unit, a switching module, a unit for data reception and output, a monitoring unit, and a decoder register. As a distinguishing feature of the patent, speed and reliability in program debugging are improved by incorporating into the device an interruption flip-flop; an automatic switching flip-flop; reset flip-flops; four rows of tubes; and AND, OR, and NOT logic circuits. The operation code input lines are connected to the inputs of the first row of tubes, the second inputs of these tubes being connected through the NOT circuit to the input of the OR circuit and to the inputs of the fourth row of tubes. The second inputs of the fourth row of tubes are connected to the first output of the control unit. The outputs of the first and fourth rows of tubes are connected to the inputs of the decoder register, whose

USSR

NEMENMAN, M. Ye., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277410, Class 42, Filed 21 April 1969, p 133

output is connected to one input of the control unit. The second output of the control unit is connected to the input of the device at the "one" of the first reset flip-flop. The "one" output of this flip-flop is connected to a tube input, and the second input of the tube is connected to the third output of the control unit. The output of the second tube is connected to the input of the device at the "zero" of the first reset flip-flop and to the input of the device at the "one" of the second reset flip-flop. The "zero" output of the first reset flip-flop is connected to the input of the third tube, the second input of this tube being connected to the fourth output of the control unit. The output of the third tube is connected to the first input of the monitoring unit, whose first output is connected to the input of the device at the "one" of the interruption flip-flop, input of the device at the "zero" of this flip-flop being connected to the fifth output of the control unit. The "one" output of the interruption flip-flop is connected to the second input of the monitoring unit. The second output of the monitoring unit is connected to the device at the "one" of the automatic switching flip-flop, the

USSR UDC: 681.326.3

NEMENMAN, M. Ye., PYKHTIN, V. Ya., MAL'TSEVA, V. A., SAMARSKIY, A. S., MALYAVSKIY, Ye. Ye., TORIKASHVILI, V. V.

"A Device for Debugging Programs"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277410, Class 42, Filed 21 April 1969, p 133

Abstract: This Author's Certificate introduces a device for debugging programs which contains a control unit, a switching module, a unit for data reception and output, a monitoring unit, and a decoder register. As a distinguishing feature of the patent, speed and reliability in program debugging are improved by incorporating into the device an interruption flip-flop; an automatic switching flip-flop; reset flip-flops; four rows of tubes; and AND, OR, and NOT logic circuits. The operation code input lines are connected to the inputs of the first row of tubes, the second inputs of these tubes being connected through the NOT circuit to the input of the OR circuit and to the inputs of the fourth row of tubes. The second inputs of the fourth row of tubes are connected to the first output of the control unit. The outputs of the first and fourth rows of tubes are connected to the inputs of the decoder register, whose

USSR UDC: 621.396.677:621.317.743

DUBROVSKIY, V. A., MALYGAN, V. B.

"Evaluating the Effectiveness of Receiving Diplex Telegraph Signals on an Obliquely Polarized Traveling-Wave Antenna"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of the Moscow Electrical Engineering Institute of Communications), 1970, vyp., pp 62-68 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B55)

Translation: The authors give the results of an experimental study of the effectiveness of type BS antennas on a route of 4200 km length. Measurements were taken on a telegraphic channel reliability analyzer by sequential connection of BSNN, BS-2 and BSVN-2 antennas to the input of the reception unit and measuring the amplitude of time distortions of DC pulse trains from the receiver output. Fluctuations in reliability are given when the reception reliability varies over the range of $5 \cdot 10^{-2}$-$5 \cdot 10^{-5}$ for the three antennas on day and night frequencies, as well as the characteristics of reliability of double reception in the case of spatial and polarization scattering. Four illustrations, five tables. A. K.

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USSR

UDC 612.14:612.57

MALYGIN, A. M., Recommended by the Department of Physiology, Petropavlovskiy State Pedagogical Institute

"Changes in Heart Rate and Blood Pressure During Prolonged Cranio-Cerebral Hypothermia"

Moscow, Biologicheskiye Nauki, No 5, 1971, pp 36-41

Abstract: Circulatory efficiency was studied in anesthetized dogs in which prolonged (up to 57 hours) systemic hypothermia (rectal temperature down to 24.5°C) was produced by means of craniocerebral hypothermia. Heart rate decreased with decreasing body temperature but was stable for any given hypothermia regardless of its duration; for example, at rectal temperature of 24.5°C, the heart rate was 70 beats per minute. Spontaneous fluctuations in the heart rate diminished with decreasing body temperature. Arterial pressure decreased with decreasing temperature but was stable for any given body temperature during the initial 26-42 hours of hypothermia; for example, at 27.3°C, pressure in the femoral artery dropped from the control level of 139/115 to 112/80 mm Hg. However, with longer hypothermia and after the critical systolic value of 90-75 was reached, arterial pressure fell precipitously, often with a fatal outcome. Venous pressure fluctuated at

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201920003-2"

USSR

MALYGIN, A. M., Biologicheskiye Nauki, No 5, 1971, pp 36-41

random during the initial stage of hypothermia. A subsequent steep rise in venous pressure was an indication of an iminent circulatory failure. It is concluded that prolonged hypothermia is dangerous and must be avoided in the treatment of patients.

2/2

Molecular Biology

USSR

UDC 547.963.3

BABKINA, G. T., KNORRE, D. G., and MALYGIN, E. G., Institute of Organic Chemistry, Siberian Department of the Academy of Sciences USSR

"Effect of Cobra Venum RNAse on tRNA Modified by Water-Soluble Carbodiimide"

Moscow, Molekulyarnaya Biologiya, No 1, 1971, pp 126-131

Abstract: tRNA modified by the pc-toluenesulfonate of N-cyclohexyl-N'-[β-(4-methyl-morpholinium)ethyl]carbodiimide does not interfere with the action of cobra (Naia oxiana) venom RNAse on the phosphodiester bonds adjacent to the modified uridine residues. Of the four possible types of bonds differing from one another in their orientation to the modified nucleotide residue and in the nature of the latter, only the bonds adjacent to quanosine ribose are relatively resistant to hydrolysis. The calculations based on experimental data concerning the relationship between the degree of hydrolysis of tRNA by cobra RNAse and the degree of modification of bases were found to be consistent with a model of enzymatic activity previously proposed by the authors in which the enzyme-substrate complex of RNAse and polyribonucleotides is formed when the molecule of the enzyme comes into contact with the trinucleotide chain of the substrate.

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UDC 599.323.4

USSR

ORLOV, V. N., and MALYGIN, V. M., Chair of Vertebrate Zoology, Moscow State University

"Distribution of Twin Species of the Common Vole Near the Zvenigorod Biological Station of Moscow State University"

Moscow, Vestnik Moskovskogo Universiteta, Biologiya, Pochvovedeniye, No 5, 1971, pp 102-103

Abstract: The common vole Microtus arvalis Pall, one of the commonest rodents in the European USSR, was recently found to form two species rather than one. The two are similar morphologically but different in chromosome sets (54 and 46). Their hybrids are sterile. During field trips from 1967 to 1970 some 100 voles were caught in an area covering 20 km^2 near the Zvenigorod Biological Station of Moscow University (fields, meadows, pastures, on the floodplain of the Moscow River, mixed forest on Moscow River terraces and examined karyologically. The 46-chromosome voles were dominant throughout the period under study in all the places investigated. The 54-chromosome mice were found mostly in mixed forest and in a pasture on the left bank of the river. However, although both species occupied a common habitat, they formed isolated colonies with slightly different plant associations. At no time were any individuals of one species caught in the colonies of the other.

USSR

UDC 669.14

STREKALOVSKIY, M. M., SMIRNOV, Yu. D., CHERNOV, G. I., KATSNEL'SON, Yu. Ye., KHOLODOV, Yu. A., STARIKOVA, A. P., NUCHINA, P. P., and KALYSH, Yu. D.

"Improvement of Technology and Quality of the 18Kh2N4VA Structural Steel as the Result of Vacuum Tapping"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 241-242

Translation of Abstract: An installation is described which ensures metal tapping under vacuum. The results of an investigation of some technological alternatives for melting and treatment of the 18Kh2N4VA steel are given.

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UDC: 621.74.1,+[illegible]

SIDOROV, Yu. I., BAKHULEVICH, V. B., STARTSEV, V. A., [illegible], KAZAKOVA, I. I., ZOKOV, V. Ye., and MIRIKHIN, P. V., Ural Polytechnic Institute

"Surface Alloying of Steel Castings With Boron"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 8, 1970, pp 132-134

Abstract: A method of surface alloying of steel castings with boron regenerated from dehydrated borax ($Na_2B_4O_2$) in the process of filling the mold is discussed. The reducing agents are aluminum, calcium, and silicon. The mechanism of boron reduction from borax comprises two stages: a) decomposition of borax into Na_2O and B_2O_3; b) reduction of boron from its oxides. Data are given on changes in the free energy of boron reduction from borax. The results of a thermodynamics analysis and the study of kinetics regularities indicate silicocalcium and aluminum to be the most efficient reducing agents. The method of surface alloying with boron has been tested on experimental batches of low-carbon steel and has demonstrated its applicability under industrial conditions. The boron content on the surface of the casting was 0.5 to 0.7% and at a depth of 15 mm about 0.008 to 0.009%. The wear resistance of surface-alloyed parts was found to be two to three times that of ordinary parts.

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1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--COMPOUNDS WITH TWO ELECTRON DONOR SYSTEMS. X. CHROMATICITY PHENOMENA IN DERIVATIES OF N,PHENYLGLYCYL,D,
AUTHOR-(02)-SMIRNOV, YE.A., MALYGINA, A.V.

COUNTRY OF INFO--USSR

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CIRC ACCESSION NO--AP0128782

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COLOR OF 1,5,(RC SUB6 H SUB4 NHCH SUB2 CONH)C SUB10 H SUB6 O SUB2 CC SUB6 H SUB4 NO SUB2,4 (I) (R EQUALS H, O,ME,P,ME,M,ME, O,MEO, M,MEO, P,MEO) IS DUE TO THE PRESENCE OF 1 ELECTRON ACCEPTOR AND 2 ELECTRON DONATING GROUPS IN EACH MOL., WHICH INTERACT. THE PRESENCE OF THE NAPHTHALENE RING INTENSIFIES THE COLOR DUE TO THE CLOSER PACKING OF I CRYSTALS IN COMPARISON WITH SIMILAR SYSTEMS CONTG. ONLY CONJUGATED BENZENE RINGS. FACILITY: MOSK. TEKST. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 599.32:576.312

VORONTSOV, N. N., MALYGINA, N. A., and RADZHABLI, S. I., Laboratory of Evolutionary Ecology, Institute of Biology and Soil Science, Far Eastern Science Center of the Academy of Sciences USSR (Vladivostok), and Institute of Cytology and Genetics, Siberian Laboratory of population Genetics Evolution and Karyosystematic, Department of the Academy of Sciences USSR (Novosibirsk)

"Chromosomes of Jerboas (Rodentia, Dipodidae)"

Moscow, Zoologicheskiy Zhurnal, No 12, 1971, pp 1,853-1,860

Abstract: A description is given of the chromosome sets of 15 jerboa species of the subfamilies Cardiocraniinae (1), Allactaginae (9), and Dipodinae (5). The diploid number of 13 species is 48, except in Salpingotus crassicauda in which 2n = 46 and in Scirtopoda telum in which 2n = 58. The karyotypes are strikingly similar. The chromosome sets of three species of the genus Allactaga (jaculus, severtzovi, saltator) are alike, as are those of Pygerethmus platyrus, P. vinogradovi, P. zhitkovi, and Alactagulus acontion. It was concluded from the constancy of the chromosome numbers and the insignificant variability of NF^a = 86 - 92 that the evolution of jerboas was characterized by pericentric inversions rather than by the Robertsonian rearrangements characteristic of other mammalian groups. Cytogenetic mechanisms are not believed to play an

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USSR

VORONTSOV, N. N., et al., Zoologicheskiy Zhurnal, No 12, 1971, pp 1,853-1,860

important part in the reproductive isolation existing between sympatric species of this family. A somewhat different classification of the superfamily Dipodoidea is suggested on the basis of karyological and morphological data.

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USSR

MALYKH, A. Ye.

"Description of Planned Planes of Order n with Latin Squares of Order n - 1"

Kombinator. Analiz. [Combinatorial Analysis -- Collection of Works], No 2, Moscow, 1972, pp 86-92 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V344, by Ye. Gonin).

Translation: It is demonstrated that a projective plane of order n can be described by a system of n Latin squares of order n - 1, the elements of which are the numbers from 0 to n - 1, with the exception of the number i in square number i, with different elements in corresponding cells of different squares and no identical pairs of elements occupying corresponding pairs of cells in different columns of different squares. This description has a simple connection with the classical description of a plane by a system of n - 1 Latin squares of order n. The geometric sense of the new description is also demonstrated. A plan is given for construction of a plane over an arbitrary square of order n - 1, and an example of construction of a plan of order 9 over a square of order 8 using a computer is presented.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201920003-2"

USSR

UDC 543.42

MALYKH, V. D., MEN'SHIKOV, V. I., MOROZOV, V. N., SHIPITSYN, B. A.

"The Possibility of Using an Alternating-Current Arc in Atom-Absorption Analysis"

Minsk, Zhurnal Prikladnoy Spektroskopii, No. 1, Jan 72, pp 12-16

Abstract: A method for atom-absorption analysis of elements with the application of an alternating current arc is proposed; previous studies had proposed the use of a direct-current electric current as an atomizer in conducting atom-absorption analyses, but the initial studies showed that the sensitivity of atom-absorption measurements considerably exceeds the sensitivity of emission measurements. Absorption is measured with a stroboscope in the current pauses to avoid the disturbing effect of arc radiation, and this makes it possible to design a circuit for recording the absorption signal. The distribution of vapors of the material was established on the basis of the change in the optical density of the interelectrode gap, and the average rest period of the atoms was measured. Sensitivity data obtained for atom-absorption measurements of gold and silver in coal deposits show that the sensitivity was $5 \cdot 10^{-5}$% for gold and $3 \cdot 10^{-7}$ for silver. The studies established that the variable-current

USSR

MALYKH, V. D., et al, Zhurnal Prikladnoy Spektroskopii, No. 1, Jan 72, pp 12-16

arc is a promising atomizer in atom-absorption analysis. It makes it possible to obtain high concentrations of atomic vapors in a brief time, and the absorption zone exceeds the excitation zone of the arc by more than a factor of 2-3. These factors ensure a high sensitivity of atom-absorption analysis for many elements. Studies of the optical density as a function of current phase and measurements of the delay time of the atoms in the interelectrode gap suggest that atom-absorption analysis in the arc current pause will have the high sensitivity only for elements with the low dissociation energies of oxygen molecules.

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USSR

FRADKIN, G. M., BREZHNEVA, N. YE., YERSHOVA, Z. V., BOGDANOV, N. I. (Deceased), KUDYUKOV, V. M., VORONIN, A. N., KOZLOV, A. G., MALYSH, YU. A., NIKIPELOV, B. V., RAGOZINSKIY, A. I., FEDOROV, V. V. and CHUSHKIN, YU. V., State Committee for the Use of Atomic Energy USSR

"Advancement of Research in the Field of Nuclear Power Engineering in the USSR (Report Presented at the Fourth United Nations International Conference on the Peaceful Uses of Atomic Energy held 6 to 16 September 1971 in Geneva)"

Moscow, Atomnaya energiya, Vol 31, no 4, Oct 71, pp 358-365

Abstract: This report cites data on the Soviet development of the thermoelectric generators designed for feeding oceanographic and navigation devices, hydrographic, automatic, radiometeorological, magnetic variation stations, high-mountain cosmic ray stations, and other scientific research land stations. The report covers the scientific and technical fundamentals of such energy sources and cites the characteristics of some generators. Discussed in some detail are various aspects of radio isotopic fuels, selection, properties, distinctive characteristics, evaluation, requirements, cost factors, availability, handling safety factors, and forms of applica-

USSR

FRADKIN, G. M., et al, Atomnaya energiya, Vol 31, no 4, Oct 71, pp 358-365

tion. The potential use of extraction separation of alkali-earth elements for obtaining pure strontium is noted. A table lists the comparative characteristics of various isotopes having potential use in thermoelectric generators. Much consideration is given to topics dealing with energy release in an isotopic unit, biological protection, radioactive decay energy conversion, thermal flow chart selection, and generator designs. Described and illustrated are some thermoelectric generators of various designations (using Ce^{144}, Cs^{137}, Sr^{90}, Pu^{238}, $Cm^{242}(Po^{210})$) including Beta-1, Beta-2, Beta-C, Efir, Penguin, MIG-67 (portable-type), and generators with cascade converters. (8 illustrations).

2/2

USSR

FRADKIN, G. M., BREZHNEVA, N. YE., YERSHOVA, Z. V., BOGDANOV, N. I. (Deceased), KODYUKOV, V. M., VORONIN, A. N., KOZLOV, A. G., MALYSH, YU. A., NIKIPELOV, B. V., RAGOZINSKIY, A. I., FEDOROV, V. V., and CHUSHKIN, YU. V., State Committee on the Use of Atomic Energy USSR, Fourth International Conference of the United Nations on the Peaceful Use of Atomic Energy, Geneva, 6-16 Sep 71

"Development of Isotopic Power Technology in the USSR"

Moscow, Atomnaya Energiya, Vol 31, No 4, Oct 71, pp 358-365

Abstract: The construction in the USSR of isotopic thermoelectric generators for powering oceanographic and navigation devices, hydrographic, automatic radiometeorological, magnetic variation stations, high-elevation cosmic ray stations, and other scientific research stations and ground installations is reported on. The most suitable for fuel applications are isotopes with a half-life period within the limits 100 days to 100 years (approximately 50 isotopes), of which 12-15 can be obtained in large amounts. Most quantities of fission radioactive isotopes and also the most widely used radioactive Sr^{90} are obtained by processing radioactive waste solutions. To simplify isolation of radiochemically pure elements, including Sr^{90}, the group concentration method is used, based on calcium oxalate precipitation. The most promising technique is extraction separation of alkaline-earth elements with the isolation of pure strontium. Here the following extractants are used: a

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FRADKIN, G.M., et al, Moscow, Atomnaya Energiya, Vol 31, No 4, Oct 71, pp 358-365

solution of di-2-ethylhexylorthophosphoric acid in kerosene from a nitric acid medium, and a solution of salicylaldoxime in tributyl phosphate from an alkaline (sodium hydroxide or ammonia) solution. Currently construction has been completed for blocks with activities in the tens and hundreds of kilocuries based on Ce^{144} (20,000 curies), Sr^{90} (9000-100,000 curies), and Cs^{137} (50,000-150,000 curies), and also blocks based on Pu^{238}, Po^{210}, Cm^{242}, and Co^{60}. The thermal capacity of these blocks lies within the range 1-1000 watts. An empirical formula was derived and tested for the power yield in an isotopic (thermal) block. Also discussed is biological protection during development and construction of isotope power sources containing kilocurie amounts of radioactive heat. In dealing with the conversion of radioactive decay energy, the thermoelectric method was found to be most fully mastered at present: low-temperature semiconductor materials (up to 300°C) have been obtained with quite high efficiencies (5-8%), as well as medium-temperature (300-700°C) and high-temperature (higher than 700°C) semiconductor materials. Combining different materials in the form of cascade elements already permits attainment of 12-15% conversion efficiency in prototypes. Demands of minimum weight and size and also low background of attendant neutron and gamma-radiation led to construction of portable generators of the MIG-67 type based on Pu^{238}. The unique properties of Cm^{242} and Po^{210} (high specific power yield and fairly low-gamma-radiation intensity) made feasible construction of isotopic thermoelectric generators using cascaded converters with efficiencies of 8-10% in the 300-850°K range.

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1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--POLARIZABILITY OF BENZENE IN GROUND AND EXCITED STATES -U-

AUTHOR-(03)-LUZANOV, A.V., MALYKHANOV, YU.B., MESTECHKIN, M.M.

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CIRC ACCESSION NO--AP0124776

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PERTURBATION THEORY AND THE HARTREE FOCK MENTIONED WERE APPLIED FOR THE CALCN. OF THE POLARIZABILITY OF BENZENE IN THE GROUND AND EXCITED STATES. THE CALCD. VALUE FOR CHANGE IN POLARIZABILITY ON EXCITATION AGREED WITH THE EXPTL. VALUE, CONFIRMING THE BASIC ASSUMPTION THAT SIGMA ELECTRONS DO NOT CONTRIBUTE.

UNCLASSIFIED

USSR UDC: 621.317.384:621.317.337

MALYKHIN, Yu. I.

"Measurement of Small Dielectric Losses on a Ye9-4 Q-Meter"

Tr. Sib. NII metrol. (Works of the Siberian Scientific Research Institute of Metrology), 1971, vyp. 12, pp 87-92 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A290)

Translation: The paper presents a description and analysis of the operation of a compensation attachment for measuring small dielectric losses on a Ye9-4 Q-meter. Resumé.

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UDC 547.241

USSR

MALYKHINA, I. G., KAZANKOVA, M. A., and LUTSENKO, I. F.

"Preparation of Copper Hydride Complexes With Trivalent Phosphorus Compounds"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2103-2104

Abstract: Copper hydride obtained by reduction of copper sulfate with hypophosphorous acid is known to form stable complexes with trialkyl(aryl) phosphines and trialkyl phosphites. The presence of impurities in copper hydride specimens impairs the synthesis of corresponding complexes with trivalent phosphorus compounds. This study concerns fundamentally another method of obtaining copper hydride complexes involving the reduction of a corresponding copper halide complex with phosphines or phosphites using a suitable reducing agent. Triethylstannane was found to be most suitable agent. The reaction takes place readily at 0°C. If triisopropyl phosphite is used as the ligand, the copper hydride-to-ligand ratio in the complex obtained by reduction is 1/1. If, however, hexamethyltriamidophosphite is used as the ligand, then the complex shows 2 ligand molecules per 1 of copper hydride. It appears that coppper hydride complexes may be produced in various compositions depending on the method of synthesis. The yields are given. 1/1

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UDC 535.33

YERMAKOVA, YE. G.; KRASNOVA, T. L., MALYKHINA, N. N., MOSIN, A. M., ONOPRIYENKO, M. I., CHERNYSHEV, YE. A., and SHPAK, M. T., Institute of Physics, Academy of Sciences Ukrainian SSR, Kiev

"Electron-Vibrational Absorption Spectra in the Near UV of Phenylsilane and Methylphenylsilanes"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 17, No 5, May 72, pp 811-817

Abstract: The article describes results of a study of electronic vapor and crystal absorption spectra for phenylsilane $C_6H_5SiH_3$ and methylphenylsilanes $C_6H_5SiH_2CH_3$, $C_6H_5SiH(CH_3)_2$, $C_6H_5Si(CH_3)_3$, as well as a comparison of the effect of the silicon atom on the aromatic ring with the effect of carbon in hydrocarbon molecules similar in structure. It was found that replacement of the carbon atom by silicon in the molecules investigated results in a 300-360 cm^{-1} increase in the spectrum shift to the long-wavelength region and intensification of the transition considered. This indicates great distortion of the hexagonal symmetry of the pi cloud of the phenyl ring in organosilicon

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YERMAKOVA, YE. G., et al., Ukrainskiy Fizicheskiy Zhurnal, Vol 17, No 5, May 72, pp 811-817

molecules as compared to the analogous hydrocarbon molecules. The spectral data suggest that there is hyperconjugation between the Si-H bonds and the phenyl ring. Electronic excitation is found to have a greater effect on the silyl group than on the alkyl group, possibly due to the $(p - d)_{\pi}$-interaction between silicon and the pi electrons of the aromatic ring.

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UDC 621.315:666:537.533

USSR

MALYNIN, YU. G.

"Secondary Electron Emission Of Some Ceramics And Antidynatron Coatings"

Tr. Mosk. energ. in-ta (Works Of Moscow Power Institute), 1972, Issue 108, pp 85-87 (from RZh:Elektronika i yeye primeneniye, No 7, July 1972, Abstract No 7A92)

Translation: The possibility was studied of reducing the coefficient of secondary electron emission (CSEE) of Type 22KhS alumina [alyumooksidnyy] ceramics and sapphirite [sapfirit] by deposition on their surface of coatings based on boron nitride and vanadium oxide. The CSEE magnitudes of the materials in question were measured with the aid of a 10-position experimental device which makes it possible in practice to study various materials under identical conditions. The vacuum in the device was $\leqslant 5 \cdot 10^{-8}$ mm of mercury. Measurements of the CSEE were made by the pulse method with an error $\leqslant 10$ percent. The data obtained show that ceramic materials which are used in units for an outlet of the energy of power microwave devices have characteristics in which the values of the CSEE substantially exceed 1, which is very dangerous from the point of view of the intensity of charge buildup in the region of the energy outlet. 2 ref. A.F.

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UDC 621.396.6.049.75.002

MALYSHCHIKOV, V.F., SHVARTSMAN, SH.A.

"Apparatus For Etching And Removal Of Coating From Printed-Circuit Boards"

V sb. Obmen opytom v radioprom-sti (Sharing Of Experience In Radio Industry--Collection Of Works), Issue 4, Moscow, 1971, p 64 (from RZh--Radiotekhnika, No 9, Sept 1971, Abstract No 9V391)

Translation: For etching and removal of coating [kraska] from one-sided and two-sided printed-circuit boards an apparatus was created which consists of a bath with a 300 L capacity of vinyl plastic, equipped with a lid and edge suction (bortovoy otsos]. Coils of titanium tubes placed at the two lateral sides of the bath serve for heating a solution with hot water or cooling it with cold water. Printed-circuit boards of any dimensions with 60-450 mm sides are loaded in a 20-place cassette with pins [shtyr'] of titanium alloy for attachment of the printed circuit boards. The distance between the boards is 18 mm. All sides of all the printed circuit boards are processed simultaneously and uniformly. The capacity of the apparatus is four boards a minute. Ye.M.

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UDC: 8.74

USSR

LYUBLINSKIY, R. N., MALYSHENKO, A. M.

"Methods of Prediction in Automated Production Management Systems"

V sb. Vopr. programmir. i avtomatiz. proyektir. (Problems of Design Programming and Automation--collection of works), Tomsk, Tomsk University, 1971, pp 162-181 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1061)

Translation: A classification tree is presented for methods of prediction in automated production management systems for solution of the following groups of problems: 1) prediction in technological problems of automated systems of production management; 2) prediction in problems of operational control; 3) prediction in problems of the control of an effect, process, etc. Prediction is understood to mean scientifically valid prognosis of the future, fixing an event unobserved at the present instant and containing an indication of the spatial or temporal interval within which the event will occur, this interval being closed and finite. V. Mikheyev.

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USSR UDC 612.822.3:615:361.814.5-092

MALYSHENKO, N. M., Chair of Normal Physiology, Chernivetskiy Medical Institute

"The Effect of Adrenocorticotropic Hormone (ACTH) On the Bioelectric Activity of the Rabbit Brain During Photo- and Phonostimulation"

Kiev, Fiziologicheskiy Zhurnal, Vol 17, No 1, Jan/Feb 71, pp 18-25

Abstract: The effect of ACTH on the bioelectric activity of the cerebral cortex and some of the subcortical formations in a rabbit was studied under conditions of functional loading. Bioelectric activity was determined by means of electrodes in the frontal, occipital, temporal, and parietal lobes of the cortex and in the subcortical formations -- hippocampus, anterior and posterior nuclei hypothalamus, and the reticular formation of the mesencephalon. A 15-channel Al'var electroencephalograph was used to record brain biopotentials. ACTH was

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MALYSHENKO, N. M., Fiziologicheskiy Zhurnal, Vol 17, No 1, Jan/Feb 71, pp 18-25

administered to the animals in doses of 2.5-5 units per kg body weight. Phonostimulation was produced by sound stimuli of 30-35 and 50-60 db of three seconds duration at intervals of 15-20 sec, and photostimulation by single and paired light flashes. The investigations established that ACTH acting through the reticular formation of the mesencephalon activates the central nervous system, intensifies the awakening reaction induced by the photo- and phonostimuli, increases the range of frequency adaptation, and increases also brain lability.

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USSR UDC 536.4

HALYSHENKO, S. P.

"The Thermodynamic Properties of Liquid pH_2"

Moscow, Teplofiz. Svoystva Veshchestv pri Nizk. Temperaturakh -- Sbornik (The Thermophysical Properties of Substances at Low Temperatures -- collection of articles), 1972, pp 14-30 (from Referativnyy Zhurnal -- Aviatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.128)

Translation: Relationships are obtained for the properties of liquid pH_2 at phase-difference curves of liquid-gas and liquid-solid. A basis is provided for the Tait equation of state for liquids and solids, and its modification is proposed. The equation of state for liquid pH_2 is obtained in two forms. Tables of the thermodynamic properties of liquid pH_2 are calculated, which considerably supplement the NBS data in the region of high pressures. 6 tables, 26 references.

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